

Goldman and Siegel on the epistemic aims of education

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ABSTRACT

Philosophers have claimed that education aims at fostering disparate epistemic goals. In this paper we focus on an important segment of this debate involving conversation between Alvin Goldman and Harvey Siegel. Goldman claims that education is essentially aimed at producing true beliefs. Siegel contends that education is essentially aimed at fostering both true beliefs and, independently, critical thinking and rational belief. Although we find Siegel's position intuitively more plausible than Goldman's, we also find Siegel's defence of it wanting. We suggest novel argumentative strategies that draw on Siegel's own arguments but look to us more promising.

KEYWORDS: epistemic aims of education; epistemic aims; true belief, rational belief; critical thinking; understanding; Alvin Goldman; Harvey Siegel.

1. What we do in the paper

At the dawn of Western philosophy, the debate on the ultimate epistemic aims or goals of education played a central role in the dispute between Socrates and the sophists, and it informed major works by Plato, such as *Republic* and *Laws*. This longstanding and venerable debate is still on-going.

Philosophers have recently claimed that education aims at fostering disparate epistemic goals — for instance: knowledge, true belief, justified belief, understanding, epistemic character, critical thinking, etc. (For an updated overview of the current positions see for instance Watson 2016.) In this paper we focus on an important segment of this debate involving conversation between Alvin Goldman and Harvey Siegel. Goldman (1999) maintains that education is essentially aimed at producing true belief. Siegel (2005), in response to Goldman, contends that education essentially aims at fostering true belief and *independently* critical thinking and rational belief. We analyse both

positions by paying particular attention to Siegel's arguments. We find Siegel's view intuitively more plausible than Goldman's, but we also find his defence of it wanting. We suggest two additional arguments in support of Siegel's position. Siegel (2005) also attempts to reject Goldman (1999)'s thesis that mere trust in the teacher's testimony often needs to supplant students' critical thinking. Siegel's arguments presuppose in this case a form of reductionism about testimony that we fear many or most epistemologists would not accept. We suggest a new strategy of response to Goldman on Siegel's behalf that isn't burdened with this type of reductionism about testimony.

Although this work defends the *epistemic* value of critical thinking and rational belief, let us clarify that we agree with Siegel (1988, 1997, 2005 and 2017) that there are many *non-epistemic* reasons (e.g., moral, practical, and psychological) for regarding critical thinking and rational belief as fundamental components of education. We don't examine these independent reasons here, but we don't underrate their importance. The exclusively epistemological perspective of this paper has been dictated by motives of thematic and methodological coherence.

In more details, §2 outlines the dispute between Goldman and Siegel on the epistemic aims of education. §3 analyses and criticizes Siegel's arguments in support of his form of epistemic pluralism. §4 outlines two additional arguments in defence of it. §5 surveys the dispute between Goldman and Siegel on the value of testimony in education and suggests a novel argumentative strategy on Siegel's behalf. §6 delivers our conclusions.

2. The dispute between Goldman and Siegel

In *Knowledge in a Social World* (1999), Goldman introduces *veristic social epistemology* (VSE), which investigates how individuals can acquire *true beliefs*,¹ rather than false beliefs, from their interactions with other individuals through various social practices involving, for instance, ordinary testimony and mass media communication. In doing so, VSE also investigates epistemic features of

¹ Also called *weak knowledge* by Goldman.

social institutions. It enquires whether institutions like legal, scientific and educational systems produce true beliefs and prevent false beliefs in those that use them. Goldman maintains that acquiring true belief and avoiding false belief is our ‘dominant epistemic goal’ in general (1999: 24). In short, he maintains that true belief is the *ultimate* or *final* epistemic goal (cf. 1999: 3 and 87).² Furthermore, Goldman endorses a *moderate multiculturalism* but contrasts VSE with *postmodern* or *veriphobic* approaches to social epistemology that reject the existence of an objective, mind-independent truth while advocating constructivism, anti-representationalism, antirealism, pragmatism, metaphysical or epistemic relativism.

Goldman recognizes that education — as a social institution — may have various aims other than true belief. For instance, vocational education may aim at fostering, among other things, *practical* skills irreducible to true beliefs. Goldman nevertheless claims that *the promotion of true belief in learners* is ‘education’s most pervasive and characteristic goal’ (1999: 349).

For Goldman, there are various effective pedagogical methods to produce true beliefs in learners, in addition to the traditional “stand and deliver”.

Education pursues this mission in several ways: by organizing and transmitting pre-existing [true beliefs], by creating incentives and environments to encourage learning, and by shaping skills and techniques that facilitate autonomous learning and steer inquiry toward truth. (1999: 343)

Goldman also recognizes that education may have diverse *epistemic* goals — e.g., fostering epistemic responsibility, rational belief and critical thinking — but he contends that all these aims are *mere (fallible) means* or *instruments* to the ultimate epistemic goal of true belief.³ Goldman is thus a *monist* about the ultimate epistemic goal of education. He rejects the alternative *monist* view

² Goldman claims that the actual epistemic value of having a given true belief should always be assessed relative to the interest that we have in it (cf. 1999: 89). A consequence is, for example, that there would be no epistemic value in having a true belief about a subject (e.g., the exact number of grains of sand on a given beach) that we have no interest in. Some epistemologists find this notion of epistemic value problematic. For a defence of Goldman see Fallis (2006).

³ It is important to appreciate that Goldman by ‘means’ intends ‘*effective means*’, where *X* is an effective means to *Y* only if the existence of *X* increases the *objective* probability of the existence of *Y*, or makes it high. In this paper we always intend ‘means’ as ‘effective means’.

— prominently defended by Siegel (1988) — that the final epistemic goal of education is fostering *critical thinking*.

Critical thinking is described by Siegel as the combination of the *ability* to reason well (i.e., to construct and evaluate the reasons that have been or can be offered in support or criticism of beliefs, judgments and actions) and the *disposition* to be guided by reasons so evaluated (i.e., to actually believe, judge and act in accordance with the results of rational evaluations) (cf. 1988: 43-44 and 2003: 305). The notion of critical thinking is closely associated by Siegel with the one of *autonomy* (cf. 1988: 54). For a person provided with critical thinking is one capable of assessing for herself reasons in support or against beliefs, judgments and actions (cf. 2003: 307). Siegel locates his view within the long tradition — which draws from Kant, Sellars and McDowell — that conceives of educating as *cultivating reason*.

Against Siegel (1988), Goldman claims:

I do not see critical thinking as an epistemic end in itself... Critical thinking... is a useful means to the fundamental end of true belief. (1999: 363)

His point is that critical thinking in students produces rational or justified beliefs, which are often *true* beliefs. Goldman (1992: 105-126) maintains that the justification of a belief coincides with or is a function of the *reliability* of the processes that cause the belief, where reliability is thought of as, roughly, the property of producing more truths than falsities. This is the actual reason why, according to Goldman, critical thinking and justified belief are valuable from an epistemic point of view in education.

Goldman also stresses that the use of critical thinking in education cannot but have an important *scope limitation*: many of the claims made by teachers simply must be taken *uncritically* on trust by students — they must be accepted by them without any evidence or reason in their support. For teachers cannot always provide reasons for the reasons they give. Therefore, also

because of this fact, critical thinking is not as fundamental as Siegel thinks in the field of education (cf. 1999: 363-364).

In his more recent paper ‘Truth, thinking, testimony and trust’ (2005), Siegel clarifies that, like Goldman, he himself endorses a moderate multiculturalism and opposes veriphobic/postmodern approaches that reject the existence of an objective, mind-independent truth. Furthermore, Siegel acknowledges — correctly in our view — that in educational contexts the beliefs that students are normally supposed to come to entertain are assumed to be *true*. Hence, Siegel drops his former *monistic* view about the ultimate epistemic goal of education but argues — against Goldman — in defence of a *pluralist* view. This is how Siegel characterizes his new position.

On the view of ‘the crucial epistemic aim’ that I favor, education should strive to foster, not (just) true belief, but (also) the skills, abilities and dispositions constitutive of critical thinking, and the rational belief generated and sustained by it. (Siegel 2005: 347)

Rational belief, and the critical thinking on which it typically depends, are not then merely instrumentally valuable in light of their tie to true belief; rather, they are as fundamental, as epistemic aims of education, as is true belief. (Siegel 2005: 350)

It is worth emphasizing that Siegel doesn’t propose that rational belief and critical thinking *taken independently of one another* are ultimate epistemic aims of education. For Siegel, rational belief and critical thinking are very intimately related, although rationality is the more general notion; critical thinking is, for him, the “educational cognate” of rationality (cf. 2005: 347n4). Beliefs reached via critical thinking are, for Siegel, rationally justified. On his pluralist view, education ultimately aims at fostering true belief and critical thinking, which typically generates and sustains rational belief.

Unlike Goldman, Siegel doesn’t identify the rationality or justification of a belief with the reliability of the process that has produced it. Siegel endorses (or sympathizes for) an *evidentialist* conception of justification, according to which the justification of a belief is a matter of, not reliability, but of whether the belief fits one’s evidence. In particular, one’s belief is justified with a

strength proportional to the weight of the evidence for it that one possesses (cf. 2005: 354).⁴ But Siegel also accepts ‘the standard view among epistemologists... of the relationship between truth and rationality or justification — i.e., that the latter are fallible indicators of the former’ (2005: 349).

3. Siegel’s arguments for epistemic pluralism in education

Siegel observes that from the fact that VSE investigates how social practices and institutions promote true belief it doesn’t follow that these social practices and institutions have the promotion of true belief as *their own* ultimate epistemic aim. Still less does it follow that they have the promotion of true belief as their *sole* final epistemic aim (cf. 2005: 349). What Siegel suggests is that Goldman would need to supply arguments in support of his epistemic monism about education — arguments that he doesn’t actually deliver.

It is worth noting that Goldman would still need arguments to support his epistemic monism about education even if his *general* epistemic monism (independent of education) turned out to be correct — namely, even if the ultimate epistemic goal *simpliciter* (or *tout court*) turned out to be just true belief.⁵ When we ask what the ultimate epistemic aims *of education* are, we ask (i) what epistemic aims or functions education has *intrinsically* (i.e., in virtue of its own nature) when education is conceived of as a social practice or institution, and (ii) which of these aims are *final* aims (i.e., which ones aren’t mere means to or constituents of other aims that education has intrinsically). It is not implausible to think that if acquiring true belief were actually the ultimate epistemic goal simpliciter, education should aim at making learners satisfy this important goal. So promoting true beliefs in learners would be an ultimate epistemic goal of education as such. Even

⁴ Siegel (2012) explicitly endorses an *internalist* conception of justification.

⁵ This thesis is notoriously controversial. Goldman (2002) makes cases in favour of it, which are forcefully opposed by Siegel (2005: §4). For general discussion see for instance Bondy (2015) and Marian (2005).

so, it wouldn't be obvious or self-evident, in this case, that promoting true beliefs in learners should be the *sole* ultimate epistemic goal of education as such.

After clarifying these preliminary issues, we turn to Siegel's four arguments in support of his form of epistemic pluralism in education. (Although we have individuated four distinct cases, our framework might not be completely faithful to Siegel 2005, as some of his arguments tend to blend with others.) Here is the first argument:

If fostering true belief were the sole ultimate epistemic goal of education, teachers would aim at inculcating true beliefs irrespective of the method. So 'many objectionable ways of achieving it — brainwashing, indoctrination, fabrication, deception, chemical manipulation, etc. — would be permissible. But they are not.' (2005: 349).

This argument aims at discrediting Goldman's epistemic monism in education. If it were cogent, it would support Siegel's specific form of pluralism only indirectly. Although the argument might appear forceful at first, we find it unconvincing. For we doubt that the subjunctive-conditional in it is true. We suspect that if promoting true belief were the sole ultimate epistemic goal of education, most teachers would or could still have reasons for not using 'objectionable' methods like those mentioned by Siegel. Hence, these methods would *not* be permissible. For instance, teachers and curricula designers could still find practices like brainwashing and indoctrination to be generally abhorrent from an *ethical* point of view and quite independently of the functions of education. Also, teachers and curricula designers should presumably rule out fabrication and deception simply because these methods would require them to present students with made-up evidence, which would induce *false* evidential beliefs in them.⁶ But this would conflict with the ultimate epistemic goal of education. Finally, in case of chemical manipulation, one might reasonably contend that methods like this are actually permissible — chemical manipulation could for instance facilitate one's

⁶ Suppose a teacher deliberately presents *E* as evidence for *P*, though she knows that *E* is false. Students would come to believe that *E* is true.

learning of large amounts of numerical data — but that they aren't in use because they aren't yet technologically available (cf. Buckland 2016: 106).

Siegel's second argument aims at directly supporting his form of epistemic pluralism:

- (i) It is accepted that 'teaching must be carried out under appropriate restrictions of *manner*: as teachers, we aim to get students to believe curricular content that we ourselves take to be true, for reasons that we take to be good reasons for regarding that content as true; we aim further that our students' resulting true beliefs will be held on the basis of those reasons'. (2005: 349).
- (ii) This is so because 'rational belief, and the critical thinking on which it typically depends, are not... merely instrumentally valuable in light of their tie to true belief; rather, they are as fundamental, as epistemic aims of education, as is true belief' (2005: 350).⁷

We don't find this case fully convincing because its premise (i) — though plausible in itself — could be argued not to constitute a reason sufficient to warrant belief in the conclusion (ii). (ii) is meant to gain credibility by providing the best explanation of the premise. However, advocates of Goldman's epistemic monism might insist that an alternative, *prima facie* equally good explanation of the facts described in (i) is this:

- (ii*) This is so because teaching students truths together with reasons for believing them is a very effective way to inculcate true beliefs.⁸ Furthermore, in this way we can productively teach students true beliefs and, simultaneously, skills to acquire true beliefs — i.e., critical thinking.

Note that accepting (ii*), instead of (ii), doesn't require rejecting Goldman's view that promoting true belief is the sole ultimate goal of education.

⁷ Siegel has indicated in personal communication that this is not a faithful reconstruction of his argument. He claims that in Siegel (2005) he intended to combine what we have identified as his first argument and what we have identified as his second argument into one comprehensive inference to the best explanation similar to the one that we suggest below in §4. We are not sure that all this is crystal clear in Siegel (2005). But if *this* was Siegel's intention, our suggestion in §4 can be read as clarifying reconstruction of Siegel's second argument.

⁸ As Socrates in Plato's *Meno* already noticed, a true belief accompanied by a reason to hold it is more stable than a mere true belief, because having a reason why the belief is true helps to keep us from losing it.

Siegel's third case defends epistemic pluralism by adducing as premises the descriptions of two thought experiments involving two students, Maria and Mario. Imagine that Maria and Mario take the same exam and answer the same question by stating that *P*.

- (a) [Suppose first that] Maria and Mario... both... *truly* believe that *P*. [However,] Maria's belief is rational in that it was generated and is sustained by her critical thinking, while Mario's is not — Mario's is a lucky true belief. It is uncontroversial [to any teacher] that... Maria's belief is more valuable epistemically than Mario's...
- (b) The same valuation obtains in the case in which *P* is *false*... Maria's and Mario's beliefs have the same truth value; again, [as teachers,] we judge Maria's superior to Mario's...
- (c) [Therefore, in education,] rationality/justification has [epistemic] value independently of its instrumental tie to truth. (2005: 351, our emphasis)

We find premises (a) and (b) fairly plausible. Siegel thinks that (a) and (b) give *independent* reasons to believe (c). This is Siegel's explanation:

[In case (a) and in case (b)] the only difference between otherwise identical beliefs is that one is rationally held, on the basis of the exercise of critical thinking, while the other is not — that is, [in each of these two] cases... everything is held constant (including truth value) except rational or justificatory status. If... one [belief] is epistemically more valuable than the other, we have a reason to think that the value of that which distinguishes between the two [beliefs] is not merely instrumental with respect to truth. (2005: 351)

The last sentence in the quotation calls for further explanation. Although Siegel is not fully explicit on this point, this is what he has presumably in mind.

Consider (a). Maria's belief is epistemically valuable as well as Mario's because they are both true. Yet it is intuitive that Maria's belief has *additional* epistemic value because — unlike Mario's — it is justified via her critical thinking.⁹ Suppose, however, that true belief were the only ultimate epistemic aim of education and that rational belief and critical thinking were epistemically valuable in education solely as a fallible means to true belief. In this case, since Maria's belief is *already true*, its being also justified — i.e., its being also a fallible means to true belief — couldn't

⁹ Note that Mario could have *propositional* justification for *P* but not *doxastic* justification for it. So by 'justification' Siegel must mean *doxastic* justification — he must mean that the belief that *P* is well-grounded.

provide the belief with additional epistemic value.¹⁰ Therefore, in education, justification based on critical thinking must have epistemic value also independently of its instrumental link to truth.

Consider (b). In this case neither Maria's belief nor Mario's is epistemically valuable *as a true belief*, for they are both false. Nevertheless, it is intuitive that Maria's belief has some epistemic value because — unlike Mario's — it is justified through her critical thinking. Suppose, however, that true belief were the sole ultimate epistemic aim in education and that justified belief and critical thinking were epistemically valuable in education only as a fallible means to true belief. In this case, since Maria's belief *is actually false*, its being justified via her critical thinking — i.e., its being also a fallible means to true belief — couldn't confer any epistemic value on it. Once again, in education, justified belief based on critical thinking must have epistemic value also independently of its instrumental ties to true belief.

We find this case by Siegel in support of epistemic pluralism also unconvincing. A problem of this argument is that it doesn't show what Siegel would like it to show.¹¹ Siegel takes conclusion (c) to support the proposition that justified belief resting on critical thinking is a *final* epistemic aim of education. But this is incorrect. (c) only says that, in education, justified belief based on critical thinking must be epistemically valuable also for a reason *other than* its being a mere means to true belief. The problem is that (c) appears to be compatible with Goldman's epistemic monism. Indeed, advocates of Goldman's epistemic monism could reasonably contend that (c) is true because in educational contexts justified belief resting on critical thinking is epistemically valuable also as *an*

¹⁰ This is what Kvanvig (2003) calls the *swamping* effect of truth.

¹¹ Also note that the above analyses of (a) and (b), on which Siegel's case is based, seem to rely on these principles:

- (1) If the epistemic value of a property *X* possessed by a belief *B* is instrumentally valuable only relative to a further epistemically valuable property *Y*, and *Y* is already instantiated by *B*, then *X* cannot confer any additional epistemic value on *B*.
- (2) If the epistemic value of a property *X* possessed by a belief *B* is instrumentally valuable only relative to a further epistemically valuable property *Y*, and *Y* has failed to be instantiated by *B*, then *X* cannot confer any epistemic value on *B*.

In (a) and (b) *X* is the property of being rational or justified and *Y* is the property of being true. Although (1) and (2) may appear intuitively plausible, epistemologists who, like Goldman, defend reliabilist conceptions of epistemic justification have recently questioned them (see for instance Brogaard 2007 and Carter and Jarvis 2012).

indicator of critical thinking, which is in turn only *instrumentally* epistemically valuable. To defend this claim they could appeal to what Bradley (1998) calls *signatory* value. According to Bradley, ‘something could be good [or valuable] not because of what it causes... but rather because of what it *signifies*’ (1998: 110).¹² Advocates of Goldman’s epistemic monism could thus contend that Maria’s justified belief based on her critical thinking is epistemically valuable also for a reason that is different from its being a mere means to true belief. Precisely, Maria’s belief is an indicator that Maria is blessed with critical thinking, which is in turn epistemically valuable. That Maria’s belief is such an indicator would clearly emerge, for instance, if Maria were asked to justify her belief or defend it from criticism. Finally, the supporters of Goldman could insist that since critical thinking isn’t an ultimate epistemic goal of education but is epistemically valuable as a mere means to true belief, epistemic monism stands unrefuted.

More accurately, philosophers sympathetic to Goldman’s views could tell us a story of this sort: in (a), Maria’s and Mario’s beliefs are both epistemically valuable because they are true. Nevertheless, it is intuitive that Maria’s belief has additional epistemic value because — unlike Mario’s — it is justified through her critical thinking. In accordance with this, since justified belief resting on critical thinking is epistemically valuable also as an indicator of critical thinking (and not only as a means to truth), Maria’s justification actually supplies her belief with additional epistemic value. All this is compatible with Goldman’s epistemic monism. Furthermore, in (b), neither Maria’s belief nor Mario’s is epistemically valuable as true belief, for these beliefs are both false. Nevertheless, it is intuitive that Maria’s belief has some epistemic value because — unlike Mario’s — it is justified through her critical thinking. In accordance with this, since justified belief resting on critical thinking is epistemically valuable also as an indicator of critical thinking (and not only as a means to truth), Maria’s justification actually confers some epistemic value on her belief. Again, this is compatible with Goldman’s views.

¹² For example, a physician might say ‘that’s good’, when looking at an X-ray photograph. The physician in this case would see something that is a sign of good health.

Siegel contends — in personal communication — that our criticism of this argument is implausible because it relies on a claim dangerously close to the one that *critical thinking* is an indicator of *critical thinking*, which doesn't appear insightful or informative. But our criticism doesn't rely on such an empty claim or one close to it. We are not proposing that Maria's critical thinking is an indicator of Maria's critical thinking. We are saying that Maria's having *one* belief, generated and sustained rationally, is an indicator of Maria's *general ability* and *inclination* to have beliefs generated and sustained rationally. This claim doesn't look uninformative but is quite straightforward. One might suggest that in order to establish that one of Maria's beliefs is rational, we already need to know that Maria is endowed with critical thinking. If this suggestion were correct, our criticism would actually rely on the claim that Maria's critical thinking is an indicator of her critical thinking, or a claim close to it. But this suggestion is incorrect. If it were correct, it would be impossible to *test* whether or not a subject is endowed with critical thinking — for example in a school exam — which is clearly false. Our conclusion is that Siegel's third argument doesn't convincingly support his epistemic pluralism.

Siegel's fourth argument runs as follows:

Because we lack direct access to truth, we have no choice but to approach truth by way of justification... If so, the basic *educational* aim should be seen not as the production of true belief, *per se*, but that of enabling students to *judge* or *estimate wisely* the truth... Consequently, critical thinking, and its pursuit of justified belief, are at least as fundamental, *educationally*, as the aim of true belief. (2005: 352-353)

We don't find this argument very persuasive. Siegel infers from the premise that students (and everyone) have access to truth only via critical thinking and justified belief, where truth is an ultimate epistemic goal of education, the conclusion that critical thinking and justified belief must be another final epistemic aim of education, rather than a mere instrument to get to true belief. We doubt that Siegel's inference is sound. A first concern is that the truth of the premise can be questioned: one might argue that in many cases students simply believe what the teacher tells them

on mere trust, and without relying on critical thinking. We set this issue aside here because we return to it in §5. Our main worry is that the conclusion of Siegel's argument *may not follow* from the premise. The inferential principle implicitly used by Siegel says this: if an ultimate aim of a social institution or practice is making X have or be Y (i.e., making students have true beliefs), and *the only way* to achieve this is making X have or be Z (i.e., making students have critical thinking and justified beliefs), then making X have or be Z is another ultimate aim of the same institution, rather than a mere instrumental aim of it. It is rather unclear that we should endorse this principle, which we don't find intuitive.¹³ Furthermore, it is easy to find dubious instances of it.

Consider a social institution different from education, say, the fire department (or fire brigade). It is uncontroversial that an ultimate goal of any fire department is extinguishing fire. Take now the following inference that exploits the former principle: a final aim of any fire department is extinguishing fire, and the only ways to extinguish a fire is removing the oxygen, the fuel, or the heat from it.¹⁴ Therefore, removing oxygen, fuel, or heat from fire is a *final* aim of any fire department, rather than a mere instrumental aim of it. This conclusion is admittedly odd; some would say it is false. This casts doubts on the cogency of Siegel's last case.

4. Defending Siegel's epistemic pluralism

Although we have found reasons to conclude that none of Siegel's four arguments in support of his form of epistemic pluralism in education is fully convincing,¹⁵ nevertheless, we find Siegel's

¹³ In personal communication Siegel admits some difficulties with his fourth argument but denies his commitment to this inferential principle. He claims that his argument simply says that 'in education, judging/estimating the truth is the fundamental value as far as truth is concerned. Whether or not what we take to be true is in fact true is independent of us... [So] from the educational point of view, if our students have judged the truth well, we've succeeded'. We are puzzled by these claims because they are stronger than the ones in Siegel (2005) and appear incoherent with Siegel's epistemic *pluralism* about education. Suppose it is true that 'in education, judging/estimating the truth is *the* fundamental value *as far as truth is concerned*' and that 'from the educational point of view, if our students *have judged the truth well, we've succeeded*'. It appears to us that on these assumptions *true belief* cannot be an ultimate epistemic goal of education. Suppose for example we all happen to live in the Matrix, whereas the external world is radically different from how we believe it is. In these circumstances, the epistemic goal of *true belief* is unachievable (at least for what concerns our beliefs about the world). Nevertheless, for all what Siegel says above, education may still succeed in achieving its ultimate epistemic goal(s).

¹⁴ These would seem to be the only ways to us. If there are more, we would be happy to extend this list.

¹⁵ Other scholars find Siegel's arguments wanting; see for instance Buckland (2016).

position more intuitive and plausible than Goldman's epistemic monism. In the following we outline two novel arguments in defence of Siegel's position, which we find less questionable and more forceful than those examined.

To begin with, note Siegel's first and second case do acquire in strength if they are combined and re-framed as *one single inference to the best (or better) explanation*. In other words, the hypothesis that critical thinking and rational belief is a final aim of education offers a *simple* and *unified* explanation of the impermissibility of certain methods in education (e.g., brainwashing, indoctrination, fabrication and deception) and, simultaneously, of the entrenched practice of teaching truths together with reasons for believing them. Thanks to its simplicity and unifying power, this explanation is more plausible than the mere conjunction of independent explanations of the same phenomena — which must invoke, as we have seen, ethical, epistemic, psychological and practical factors — available to those who embrace Goldman's monism. This provides some support to Siegel's view.

More importantly, we also suggest that a *variant* of Siegel's second thought experiment — concerning Maria and Mario — does supply another, perhaps stronger, reason to accept Siegel's pluralism. To begin with, let's suppose that Maria and Mario's rational faculties are *cognitively disconnected* from the world. For instance, imagine that, unbeknownst to them, Maria and Mario have been living in the Matrix, to the effect that the "reality" they have been experiencing is actually a mere computer-generated simulation. Most of Maria and Mario's beliefs about the world are thus *false*, and the relevant belief production processes are all *unreliable*. It is intuitive that these false beliefs would be nevertheless justified if they were supported by Maria and Mario's evidence and — more generally — if they were generated and sustained by Maria and Mario's critical thinking.¹⁶

¹⁶ Incidentally, note that these intuitions do harmonize with Siegel's *evidentialist* conception of justification. *Reliabilists* like Goldman, on the other hand, are well-known for having difficulties in assenting to them. The basic problem is that, in the envisaged scenario, Maria's and Mario's belief formation processes are unreliable. So, the resulting beliefs should count as unjustified from the reliabilist's point of view, regardless of what evidence the students might have (cf. Cohen 1984 and Pollock 1984).

Suppose that Maria and Mario take the same exam (in their virtual school) and they answer the same question by stating that *P*. Since *P* is meant to describe facts in the world, *P* is *false*.¹⁷ Furthermore, imagine that Maria's answer is produced and sustained by her critical thinking, whereas Mario's answer is a mere guess. This scenario is not *essentially* dissimilar from the original one described by Siegel in his second thought experiment — Maria's and Mario's beliefs are still false, and Maria's belief — but not Mario's — is still justified as generated and sustained by her critical thinking. The only important difference is that Maria's and Mario's belief production processes are now *unreliable*, whereas in Siegel's case nothing was specified about this.

If presented with this scenario, as educators, we should still agree that Maria's belief is epistemically valuable — to some extent at least — and more than Mario's. The intuition would still be that in this educational context Maria's belief has epistemic value because, though false, it is justified through Maria's critical thinking.¹⁸ How does this support Siegel's epistemic pluralism? Maria's justified belief couldn't have epistemic value as a means to true belief. For none of Maria's belief about the world could be such a means in the envisaged scenario. This strongly suggests that fostering rational belief in students through the exercise of their critical thinking is *per se* an epistemic aim of education. Note that Maria's justified belief is still epistemically valuable also as an indicator of the fact that Maria is endowed with critical thinking. However, in this new scenario, Maria's critical thinking couldn't be epistemically valuable as just a means to true beliefs. For most of Maria's beliefs cannot but be false. Thus, supporters of Goldman's epistemic monism couldn't explain the intuition that Maria's belief is epistemically valuable (more than Mario's) by appealing to that form of epistemic monism.

¹⁷ Suppose the exam question is about the fall of the Roman empire, which never actually existed in Maria and Mario's world.

¹⁸ Buckland (2016) contends, against Siegel, that 'a case in which students only ever learned an unending series of false beliefs, but for which they could nonetheless provide excellent rational justifications... [would] not represent the successful attainment of one important and independent epistemic end of education, as per Siegel's account' (106). Our thought experiment suggests that Buckland's contention is mistaken. In our scenario, all the false beliefs that Maria entertains that are also justified through her critical thinking constitute 'an unending series of false beliefs'. Yet it is intuitive that when they are compared with Mario's unjustified or fortuitously justified beliefs, they do represent the successful attainment of one important and independent epistemic end of education.

5. Goldman and Siegel on critical thinking and testimony

As anticipated in §2, Goldman contends that the use and thus the relevance of critical thinking and rational belief in education is in any case importantly limited for the reason that a good portion of actual teaching consists of teachers making statements or assertions without supporting reasons, evidence, or argument. This is so because:

Teachers... cannot give reasons for absolutely everything they assert, since reason giving must somewhere come to an end. One cannot defend every premise of every argument with further premises, on pain of infinite regress. (1999: 364)

Goldman thus claims that it is reasonable for the educational system to *expect* students to accept at least certain statements on mere trust and without subjecting them to their critical thinking.

Goldman suggests, however, that an advocate of the good reasoning — or critical thinking — approach might try to resist his conclusion by maintaining that:

(GR) A hearer is never justified in believing what a speaker (baldly) asserts unless the hearer has good, independent reasons to trust the speaker on that occasion. (1999: 364)

Goldman has no *knockdown* argument against (GR). His main criticism of (GR) turns on his doubts concerning *reductionism* about testimonial justification. For Goldman, a reductionist approach to testimony maintains that all trust in testimony must be justifiably based on *testimony-free* evidence. This means that the hearer must use her personal observations to check directly the veracity of speaker's report and thereby establish her reliability (cf. 1999: 126). So-conceived reductionism entails that

A hearer is justified in believing speakers' assertions if and only if the hearer has good reasons to trust the speaker, reasons that do not ultimately rest on testimony itself but instead rest wholly on [the hearer's] perception, memory and so forth. (1999: 364)

Goldman is clearly inclined to think that reductionism is false (cf. 1999: 127), but his argument against (GR) comes ultimately in form of a conditional: *if* reductionism is false, *then* (GR) is untenable (cf. Siegel 2005: 359) or, equivalently, (GR) is true *only if* reductionism is true.

In his reply to Goldman, Siegel (2005) concedes that *very young* pupils don't begin their cognitive lives as critical thinkers, for they must acquire the relevant concepts, skills and abilities. Thus it is true — but only trivially so — that teachers should expect very young pupils to assent to their claims on mere trust. Yet Siegel suggests that a principle like (GR) is actually true when applied to more mature students, and he launches himself into an example-based defence of reductionism — specifically of the claim that grown-up students typically have reasons to trust their teachers that rest wholly on *non-testimonial* evidence (cf. 2005: 161-163).

Siegel's defence of reductionism about testimonial justification in educational contexts has been dismissed as unconvincing by various authors (see for instance Ferreira *et al.* 2016 and Buckland 2016). Indeed, many epistemologists nowadays reject as implausible the type of reductionism about testimonial justification described above. A well known problem is that in most cases the hearer doesn't appear to have sufficient *non-testimonial* evidence to support the credibility of the speaker. For what ordinarily passes or may pass for a *personal* observation of a subject very often is something that presupposes a rich background of notions, beliefs and expectations that have been acquired by the subject *via testimony* (cf. Goldman 1999: 126, see also Coady 1992 and Lackey 2011). For example, Siegel contends that students generally have a variety of wholly testimony-independent reasons to trust their teachers; precisely:

Teachers are in positions of authority; they possess relevant academic credentials; they are treated as experts by their colleagues, administrators, and other adults (including the students' parents); etc. (2005: 361)

However, it is dubious that students could grasp the notions of (epistemic) authority and expert and appreciate their implications for the veracity of people's testimony, or recognize academic credentials, administrators and colleagues of teachers without resorting to the testimony of other persons at some point of their intellectual development. Thus it is questionable that facts like those described in Siegel's quotation could actually work as fully *testimony-independent* reasons of students to trust their teachers.

We suggest that Siegel would have more chances to succeed if he responded to Goldman's challenge by insisting that the truth of (GR) doesn't need to rely on reductionism about testimonial justification, as characterized by Goldman.

Siegel could argue along these lines: (GR) states that a hearer H is never justified in believing what a speaker S asserts unless H has good, independent reasons to trust S on that occasion. (GR) doesn't specify, however, that H must have independent *non-testimonial* reasons. To forestall a form of patent circularity, 'independent' in (GR) must certainly be interpreted as 'independent of S 's *testimony*'. Yet this doesn't forbid H from having *testimonial* (or *partly testimonial*) reasons *independent of S 's testimony*, in order to be justified in believing what S asserts. For example, a student H could be told by a teacher S_2 that another teacher S_1 is a reliable source about history. H could then attend S_1 's classes and come to justifiedly believe, through S_1 's testimony, that by 1970 a third of Americans were against the Vietnam war. Alternatively, H could infer from various references to S_1 's work in S_2 's papers and the fact that S_1 is treated as trustworthy by many students that S_1 is a good source about history. H could then attend S_1 's classes and come to justifiedly believe many propositions about French history through S_1 's testimony. Cases like these appear quite ordinary and — we submit — should be accounted for by any satisfactory theory of testimonial justification.

A concern might be that the regress in H 's search for justification could elicit into an *infinite* regress. For instance, H could need to rely on S_3 's testimony to trust S_2 's testimony. Then, H could

need to rely on $S4$'s testimony to trust $S3$'s testimony. And so on indefinitely. But this is unnecessary. On a *coherentist* approach to justification — like the one defended in Fricker (1994)¹⁹ — there is no such infinite regress, as H 's justification would ultimately depend on the web of all her beliefs standing in the appropriate coherence relation.

6. Conclusions

In this paper we have outlined Goldman and Siegel's dispute on the epistemic goals of education. Goldman claims that there is one such goal: true belief. Siegel contends that there are two independent goals: true belief and justified belief accompanied by critical thinking. We have argued that Siegel's cases leave themselves open to criticism of various types. Nevertheless, we have suggested two novel arguments that might vindicate Siegel's view. Goldman claims that testimony on mere trust is more fundamental than critical thinking at school. We have also suggested a variant of Siegel's response to Goldman that shields it from the charge of involving a questionable form of reductionism about testimonial justification.

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¹⁹ Fricker (1994)'s position is however unclear. In some passages she seems to endorse a coherentist view of this type, in others she claims that a hearer has a *presumptive* epistemic right to believe what a speaker asserts even without independent reasons for trusting the speaker.

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